

Applicants' representative thanks the Examiner and the Examiner's Supervisor for the opportunity to discuss the application on November 18, 1998.

The Examiner objected to the Information Disclosure Statements filed on April 14, 1997, and July 15, 1997. Applicants contacted the Examiner and it was agreed that the Examiner had considered each reference initialed on the Information Disclosure Statements filed on those dates. Applicants forwarded additional copies of the references attached to the April 14, 1997 Information Disclosure Statement to the Examiner for his review. Applicants request that the Examiner indicate on the next communication from the Patent Office that each of the references from the above-identified Information Disclosure Statements have been considered.

The Examiner objected to FIG. 43 because arrow z described at pages 39 and 40 of the specification were not shown in FIG. 43. Applicants have amended the specification to change the description of arrow z to arrow x. Accordingly, Applicants submit that the Examiner's objection to the drawings has been remedied, and withdrawal of the objection is respectfully sought.

The Examiner rejected claims 29, 30, 32 and 34 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention. Applicants amended the claims to more clearly claim the invention, and submit that the specific rejections cited by the Examiner have been remedied. As such, Applicants request that the Examiner withdraw the rejection under § 112.

The Examiner rejected claims 29 and 32 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,579,039, issued to Kurata et al. The Examiner states that Kurata discloses an ink jet recording apparatus comprising a printer case, a carriage moveable over a recording and a

non-recording region, recording heads mounted on the carriage, a releasing lever provided on the carriage for maintaining the recording heads in position, and a locking portion that prevents movement of the carriage and the release of the recording heads should the lever not be in a fully closed position. Applicants respectfully traverse the rejection.

Kurata does not teach or suggest, as is claimed in claim 29, a lip for preventing the lever used to retain ink cartridges from rotating to its open position (where ink cartridges are permitted to be detached from the carriage) when the carriage is positioned within a print area, *and* for preventing the carriage from moving from a nonprint area to the print area when the lever is in the open position. Instead, Kurata employs a relatively complex system of preventing a user from detaching the ink cartridge in the print area to avoid damage to the head or the scattering of ink in the area of the recording material. See, e.g., Kurata 7:46-8:23. When the head (2) is in the print area, Kurata employs a spring-loaded locking pawl (24) to prevent the lever (22) from rotating to a position that permits the detachment of the cartridge. When the carriage (1) is in the nonprint position (depicted as A in Figure 2 of Kurata), the pawl (24) is rotated by guide (27) as is shown in Figure 6, thereby allowing lever (22) to be rotated to release a cartridge. See Kurata 6:55-7:15. In addition to this complex pawl system for preventing release of the ink cartridges, Kurata includes a carriage locking portion (29) shown in Figure 2 for preventing the carriage from being moved from the non-print position (position A) if lever (22) is not in its closed position. Thus, Kurata employs two distinct elements to perform the functions of preventing release of the ink cartridges in the print area and preventing the carriage from being moved from the non-print position when the ink cartridge is not properly attached to the carriage.

As discussed above, Applicants have amended the claims to more clearly claim the invention and to clarify the claimed subject matter. As amended, claim 29 claims a carriage, a head, an ink cartridge, a lever, and a lip positioned to *both* prevent the lever from pivoting to the open or first position where ink cartridges are permitted to be detached from the carriage when the carriage is positioned within a print area and prevent the movement of the carriage from a nonprint area to a print area when the lever is in the open position by abutting the lever at the position where the carriage would move into the print area.

Thus, the current invention, as is explained in pages 39-40 of the Specification and shown in FIGS. 43 and 44, eliminates the need for both the locking pawl (24) (and its associated components) and the carriage locking portion (29) of Kurata by combining the functions of each in one component—lip 13c. Lip 13c of the invention is positioned in such a way so as to prevent lever 80 from being pivoted to permit the detachment of ink cartridge 90 when the ink cartridge is in the print area. See FIGS. 43 and 46. Lip 13c *also* performs the function of the carriage locking portion of Kurata. In the event that lever 80 is not in its closed position, shown in FIG. 2, lip 13c contacts stopper 13d of lip 13c. See FIG. 45.

The most significant benefit provided by such an arrangement is its simple construction. Instead of employing the pawl arrangement (24) and the locking portion (29) as does Kurata, the instant invention requires only lip 13c. As such, there are fewer interacting parts than in the Kurata construction, and therefore the instant arrangement is less expensive to manufacture, requires less maintenance, and is more reliable. Furthermore, because Kurata relies upon the interrelationship of cams, pawls, and spring-loaded stoppers to operate, there are tight tolerances between the operating pieces such as pawl (24) and guide (27), which make

assembly more difficult. As a result, when the pieces wear, the Kurata arrangement will perform less reliably and with less accuracy. In contrast, the current invention relies on an elegant structural feature that will not wear and will not require adjustment over time to perform the electromechanical functions of the pawl and locking portion of Kurata. Nothing in Kurata teaches or suggests the arrangement of the current invention. Accordingly, Applicants submit that claims 29, 30, and 32, as amended, are in condition for allowance.

The Examiner rejected claims 33 and 34 under 35 U.S.C. § 102(b) as anticipated by Japanese Laid-Open patent 1-301350, issued to Suzuki. The Examiner contends that Suzuki discloses a printer with a carriage 22, a head 21, a resilient clamp 11, and an ink jet cartridge. Applicants respectfully traverse this rejection.

Claim 33 defines an ink jet printer, comprising a carriage, an ink cartridge, and a substantially U-shaped lever having a first and second arm attached at one end by a tab and pivotably mounted to the carriage about a pivot axis defined as a line drawn between a first pivot point of the first arm and a second pivot point of the second arm. The lever is pivotable between a first position where the cartridge is not attached to the carriage and a second position where the ink cartridge is attached to the carriage.

In contrast, Suzuki does not teach or suggest a lever that pivots about a pivot axis from a first position where the ink cartridge is not mounted to the carriage to a second position where the ink cartridge is mounted to the carriage. Rather, Suzuki describes a clamp lever 11 to fix the print head 21 to the carriage 22 by pressing the print head from above by piece 12 and from before and behind by pieces 13. Clamp lever 11 of Suzuki is positioned about print head 21 by engaging an end of piece 13 at mount groove 15 to pin 26 and then rotating clamp lever 11

about right-hand pin 26 (which defines a pivot axis perpendicular to the carriage movement direction) so as to permit the user to engage the other piece 13 at mount hole 14 to left-hand pin 26.

Critically, print head 21 of Suzuki is mounted on carriage 22 prior to employing clamp lever 11. Clamp lever 11 does not assist in positioning the ink cartridge from a position where the cartridge is not mounted to a position where the cartridge is mounted on the carriage. Thus, clamp lever 11 of Suzuki does just what its name implies: it clamps the ink cartridge to the carrier. As a result, clamp lever 11 pivots about an already-mounted cartridge so as to be attached to the carriage on either side of the ink cartridge. Suzuki does not teach or suggest using a lever to first engage the cartridge and then cause the cartridge to engage the carriage. Further, Suzuki does not assist in properly positioning the ink cartridge on the carriage when the lever moves from a first position to a second position because the cartridge must already be in position on the carriage for Suzuki to be employed. Accordingly, Applicants request that the Examiner withdraw the rejection based on 35 U.S.C. § 102(b).

Moreover, Applicants submit that new claims 42-50, each of which depend directly or indirectly from claim 33, and claims 51-53, define additional features that are not taught or suggested by Suzuki or Kurata. For example, claims 42-44 more specifically claim the manner in which the cartridge mates with the carriage. Claim 51 claims a printer having a novel lever, one example of which is depicted at FIG. 40. The lever includes grooves shaped to accept ink cartridge pins when the lever is in a first position. As is claimed in claim 52, the pins move within the grooves as the lever pivots from the first position to the second position. Finally, claim 53 is directed to a stopper pin that prevents the over-pivoting of the lever when the lever

is pivoted to the first position. This feature is shown at FIG. 40 and described at page 38, lines 10-13 of the specification.

Applicants have made a diligent effort to respond to the outstanding office action and submit that claims 29, 30, 33, 34, 36-41, and 42-53 are in condition for allowance. The Examiner is requested to contact the undersigned attorney in the event that the Examiner can not issue a Notice of Allowance to this effect. Early and favorable action is earnestly solicited.

Respectfully submitted,

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